

## **I want a suit!**

So you've decided you're ready for your first wingsuit. Since you're new to the discipline, this can be difficult due to the overwhelming number of brands and models available on the market. Well meaning wingsuit owners who expound the merits of their own wingsuits and manufactures eager to sell their products make this even more difficult. Everyone seems to have an opinion, everyone has something to say on the subject. How does the new wingsuit pilot maneuver through all of the conflicting information?

## **First Considerations**

Your level of experience, capabilities and air skills are important considerations when buying a wingsuit.

In this document, we'll go through some of the aspects of wingsuit design, and provide information that will assist you in choosing the right suit which for you, and the type of flying you want to achieve.

But remember that the wingsuit does not make the pilot, the pilot makes the wingsuit. In the door of an airplane, or on the edge of a cliff, its your skills that determine how the wingsuit flies.

## **What suit is best?**

This is a common question heard from a lot of new flyers.

There is no simple, clear cut answer to this question. Your body build, the style of flying you intend to pursue, and the challenges and goals you set yourself all effect the answer to this question.

Consideration must also be given to the types of other wingsuit flyers on your dropzone and who you want to be flying with. There may be significant differences in older low performance wingsuits to new top end suits if mixed in a formation.

Wingsuits come in a variety of shapes and sizes. Suits are built for different proportions, angles of flight, body types, and some have grippers on the arm-wings, big wings or small wings.

Each manufacturer wants you to believe their top of the line suit is the best and fastest or slowest suit ever, but when comparing the performance of the different suits, it's hard to point to one and say it's the best available.

Generally, it's top pilots flying the suits that provide the fall rate data used in marketing various suits. Top pilots are people that have been flying wingsuits for a long time. As a general rule, it's pilot skill you see reflected in their performance numbers. Considering the contests that are being held for distance, horizontal fall rate, vertical speed, the results don't vary all that much. Keep in mind that a top-of-the-line suit does not make a poor pilot a better pilot; it will only improve his skills to his best level of mediocrity.

It's quite safe to say that buying any top of the line suit from any manufacturer offers a suit with a wide performance envelope. Looking at the different types of competitions, you'll see its not a clear cut case of one suit consistently winning. The difference in performance of various suit brands is measured in mere percentages, much like comparing top athletes in running. These are differences of inches and seconds., not miles and minutes.

Therefore, asking for 'the best suit' is not really a valid question.

The correct question to ask is "*Which suit is best for me and my goals?*"

Many people will spend countless hours debating which suit that may be, and will usually have their own opinion on the matter. And for their own body type, style of flight, and wingsuit goals, their opinion is probably valid.

But taking each manufacturer, and going through the specific suits they have for beginners, aerobatics, distance etc, all manufacturers quite comparable in terms of what they offer.

So if asking for 'the best suit' doesn't work, then what *do* you look for?

## **Flying style**

We're going to go through the different design elements of wingsuits, and help you choose, step by step, which suit may best fit your own needs.

There are a lot of different types of flying, and its your choices in flying that largely determine which suit is best *for you*.

- Do you enjoy long solo flights?
- Do you like creative aerobatic flying, swooping and diving, maybe spending a lot of time on your back?
- Are you planning on making a lot of docks?
- Are you planning to do wingsuit BASE jumps with the same suit?

## **Performance or playtime**

Your choice of wingsuit will in part be dictated by the style of flying you prefer. *Creative fun*, or *maximum performance* flying.

Though there is a large overlap in function and ability, most wingsuits are *specifically tailored towards a certain type of flying*. In the next few chapters, we will look at the different design aspects.

Helping you identify what type of wingsuit you are looking at, and which suit may be right for you.

## **Backfly vents**

If you are planning on doing a lot of camerawork underneath formations on your back, or maybe just playing with other people while backflying, then a suit with back vents/double inflation will definitely be something you are looking for. More and more manufacturers offer this as an option or even as a standard feature on their suits.

## Take my hand, grippers or not?

Drumsticks, grips, wing extensions or whatever you want to call them, a lot of wingsuits have them. But there are also a lot of suits to choose from that don't have the grippers. What are they for, and should you choose for a suit *with* or *without* grippers?

First, let's have a look at what they are for;

On high-end suits, the grippers are a way of maximizing the arming surface.

These grippers mean the wing has a lot of extra surface at the end of the arm.

This means, the leg wing can also be proportionally bigger, and the suit *could* potentially have a lot of extra lift compared to some of the smaller suits *without* grippers.

So far, it's all good. But of course, there are also some downsides to the bigger arm wings with grippers.

First off, there is a lot of extra fabric and a big 'drumstick' at the end of your arms. This means there is a lot of material that could get in your way during pull time. It *shouldn't* be a problem in pulling, but it *could*, as it's possible to reach around the material. But depending on your experience and also for a large deal, your own comfort level, you may want to choose for a suit that doesn't complicate your pull too much.

Having a lot of extra arm wing also means, there is more pressure on your arms. Though the inflation and design of the suit influence the arm pressure in more than one way, it's safe to say that bigger wings will mean it's going to be heavier on your arms. And especially on longer flights, fatigue will come into play with the larger arm wings.

Depending on the actual inflation of the suit, holding the grippers in flight is optional or mandatory. If the suit inflates well, you can let go of the grippers for docks without it affecting the performance. But on some of the bigger suits, letting go of the grippers means you lose a bit of the wing, as the cell-pressure inside the wing is not enough to keep the wing in shape. Thus, having the gripper and end of the arm wing flapping. Losing a bit of your lift as a direct result of that, which could make certain moves such as docks more difficult to achieve.

If you are aiming for more creative flying. Also called *aerobatics*, there are usually no wingtip-grippers.

This means your hands are free to take docks. There's even some suits with specially designed grippers on the legs. Something that's bound to also get more common in time, as skills improve, and people learn to multiple docks with bigger and bigger groups.

As a rough rule of thumb, wingsuits with big arm grippers are usually aimed towards performance, more than they are meant for creative aerobatic flying. This doesn't mean you can not do other types of flying. Far from it.

But it may take more effort. "Dress for success" are words to live by.

## **Pitch angle**

Buying a suit specifically geared towards performance is definitely easy, if that's the thing you are aiming for.

The trim, or *pitch* of a suit can be slightly more head low/diving if its specifically designed for distance flying.

This doesn't mean other suits cant be flown for distance at the same rate of success. But it will take some more *active* effort to get them into that slightly head low attitude where its producing most drive (distance)

But using a suit specifically designed for distance flying will probably produce the best results.

*A considerable downside is that flying with other people in a suit built for distance (outside a solely performance driven jump) can prove difficult. This as the ability to fly the suit a bit slower forward while maintaining lift, even as slow as close to a stall), is difficult due to the natural head-low trim in such a suit. As a result, you see specific suits marketed for distance (often BASE) and others for flocking.*

## **BASE pouch**

If you are considering BASE jumping your wingsuit, then a "BASE-pouch" may be an option.

A secondary pocket for the pilot chute will then be stitched onto the wingsuit, allowing easier access to the hackey at pull time.

Keep in mind this is a feature designed exclusively for the BASE environment, and using the BASE pouch in a skydiving environment ads a severe (potentially lethal) risk for premature deployments.

If you are not planning on BASE jumping with your wingsuit, its definitely worth saving a few pennies by not adding having this option. As there isn't a single wingsuit that would need the BASE pouch for pilot-chute access, as the BOC pocket on a skydive rig should be normally accessible.

## **Big boys n' Big Toys?**

Something that will also definitely affect your flying, particularly in groups/flocks, is your body weight.

Wingloading is a strange thing. When everyone flies for maximum performance no matter how light or heavy we are, we can all fly the same trajectory. The problem heavier people will encounter is that they will arrive at the same destination sooner than the lighter person who will take longer.

In technical talk, this means everyone can (potentially) fly the same glide ratio, but the fallrate (or more simply said), freefall time we gather during this flight will vary. Lighter-weight people will almost always have longer flight time. Though again, skills are what ultimately determine your performance.

This also explains why distance contests in a wingsuit are quite fair, while competitions of freefall time might be viewed as a contest in who has the tallest/lightest build, while flying the biggest suit in the market. It's not a comparable competition when a 200 lb person challenges a 150lb person in a freefall/time-based contest. The lightweight person (given equal wingsuit skills) will always enjoy a longer flight.

But of course, body build is not everything, and skill very much comes into play when aiming for slower fallrates.

But no matter how much skill, when a relatively heavy person tries to fly with a formation that doesn't have enough forward speed to maintain lift, he will sink out more quickly than others.

This means that for a heavy guy, flying a bigger suit could definitely be a solution if you want to make sure you can also maintain low fall rates, during flights with less forward speed. However, beginning wingsuit flyers shouldn't worry as much about freefall time, but rather learning to achieve distance. Longer freefall time will come with experience.

## **I like em big?!**

Though everyone wants to aim for the biggest suit out there for most lift, it may not always be the smartest choice. Sometimes shorter/smaller people get in trouble when choosing a bigger suit when trying to improve their performance in a group/flock.

Learning to fly their current suit better is often a better solution.

Much like a light person trying to fly a big canopy, too large a suit relative to body size/weight can lead to slower flying. Lacking the weight or 'drive' to keep up with the other flyers is a typical problem for suits that are proportionally too large.

Though this doesn't necessarily mean the light person is improperly flying the suit, and they may even be flying much further in terms of distance than the group that's being followed. But to fly with others successfully, a slightly smaller wing may actually prove to be a better choice for lighter-weight flyers.

If aerobatics are the preferred flying style, then it's also wise to choose a suit with slightly smaller wing-surface, making transitions, more aggressive with moves and docks a bit easier to execute.

This slightly smaller wing surface may mean a slightly lesser performance on maximum flight, compared to people flying larger suits.

However, performance usually isn't the important focus on aerobatic jumps.

In most cases, acrobatic suits are well within the performance envelope of the average flocking (formation flying) that's happening on most dropzones. Dress for success.

## **Getting' it On!**

Between manufacturers, you will see a big variation in ways to rig a wingsuit;

There are several suits where the wings are attached to the body with a cable system, allowing for a very precise fit to your rig. Depending on experience, allow around 5 to 10 minutes to rig up a suit and rig with this system.

On other suits, you will see the wings paired with the body with zippers which allow for much quicker rigging of a wingsuit. On some brands, zippers may possibly affect the customization of the suit, as related to the fitting your rig.

When using a suit with a zipper rigging system, be absolutely certain that your handles are not at risk of being swallowed by the suit. *A proper fit is mandatory.*

### **How many suits do I need?**

You may see some people owning 5 to 10 wingsuits. Although its definitely nice to own a range of suits, it will significantly benefit your experience if you focus on flying one suit and flying it really well.

There may of course (if you have the money), be a split where you choose between one suit for performance and one suit for aerobatics or flocking. With enough practice, learning to explore and utilize the full flight envelope of your wingsuit, one wingsuit is all that is typically needed.

Owning a second (beginner/introductory) wingsuit does offer options for taking friends along who just started on wingsuits and don't own their own wings yet.

### **Mono-Wing or Tri-wing**

There are two significant designs of wingsuits, the mono-wing where the suit inflates as a singular unit and the triwing designs, where each of the 3 wings inflates individually.

The flying style for these suits also varies a little bit. The mono-wing relies on a weight shift principle to execute turns and maneuvers and the body is bent and flexed to change the speed. With the wings always kept tight.

The tri-wing suits are generally flown more on the arms. Flexing legs and arms to alter the wing shape.

But this is arguably just flying style. As both suits can be flown with either technique.

Through trying out different wingsuits will you find out which suit and matching flying style is most suitable for you.

### **Which manufacturers?**

A key factor in deciding which wingsuit you want to buy, is sorting out which manufacturer you prefer. Many considerations should carry weight in this decision.

Delivery times between manufacturers can vary depending on the time of the season, and which equipment they use to cut and sew their wingsuits. For some manufacturers, they can output a suit in as fast as 10 days.

In general, much like ordering a rig or any other piece of customized skydiving gear, waiting between 3 weeks to 3 months can be quite normal.

Customer service is also a thing to keep in the back of your mind when ordering. But in general most (if not all) manufactures are offering top quality service

Resale value of the suit is likely an important factor to purchasers of a first wingsuit, as most flyers eventually settle in on a preferred flying style, and will choose a second (or perhaps third) suit accordingly.

Materials used in construction of the suit, along with strength and durability of the wingsuit will vary per manufacturer. Seek out wingsuit owners to ask questions about the durability of the various suit materials.

Manufacturer preference is usually based on personal preference. Asking other wingsuit pilots about their experiences ordering a wingsuit is usually the best bet in trying to find out which one you want to use.

## Materials and Colors

Depending on the manufacturer chosen, you may be offered a choice in the material used to construct the wingsuit. The most common materials are *Balloon Zero-P*, *Parapak* and *Sail*.

The type of fabric may affect the flight performance of a wingsuit due to more or less drag. But there is *hardly any data* on that matter, so its more common to focus on the *strength and comfort* the different materials offer.

*Balloon Zero-P* is the weakest of all materials used. The fabric doesn't *'breathe'*, which can make it quite hot in summer. But the material is *light to wear and easy to clean*. The material tends to nicely follow the forms of the body, though fit and construction are key factors.

*Balloon Zero-P* is sensitive to small tears. If these are not fixed in time, these may cause a so called *blow-out*. Air suddenly rushing in through a hole, causing a wing to explode. Especially high-speed exits from tailgate aircraft.

*Sail* material offers more strength, but also has the same problems in terms of *'breathing'*. This makes the wingsuit very warm to wear in summer.

The material is quite stiff, which usually makes the fit a little less conforming to the body. But at the same time it *makes the wing profile very rigid*.

*Parapak* does *'breathe'*, but due to the higher porosity is often used in double layers. This usually makes a wingsuit made out of parapak heavier to wear.

On wingsuits made of Parapak and Sail, the stitching is usually the weakest point in construction.

Having a bit of extra material in the same color of your wingsuit as a backup for emergency repairs on the dropzone is always a good idea.

Ductape is often seen as a wonder cure. But even though it may help you for a few jumps in case of emergency, its better to have repairs or modifications done by someone capable, like a rigger of the actual manufacturer of you wingsuit.

Color is also a choice to think about. Choosing an all black suit will look cool. But it makes a wingsuit incredibly hot to wear in summer. An all white suit will be nice and cool in warm weather, but is very susceptible to dirt and staining from crawling around in the airplane, and maybe the occasional rough landing.

Also think about visibility. Bright colors will not only make a wingsuit stand out in video and photos, but also add a degree of safety to a jump. As people may notice you a bit sooner if you are approaching from an odd angle or the other way around.

## **New or 2<sup>nd</sup> hand**

A good choice to make, is if you will be buying a new or used wingsuit.

A new wingsuit has the advantage of being custom made, and this having a fit that's perfect for your body (provided proper measurements and construction). But at prices of \$1000 and up, it's a big investment.

Especially in the beginning, when still in the learning phase, it could be a wise thing to buy a *cheaper* second hand wingsuit. Maybe with a *smaller set of wings* than the suit you finally intend to end up flying.

And you could be lucky and find the suit you want, in a size that fits perfectly for half (or less) the price of a new one.

The skills you learn in flying an intermediate suit are good foundations rather than pure survival skills. With less wing to worry about, you have much more control and direct feedback on what you are doing. Especially when compared to what you would learn by flying a big top end suit right off the bat, where most people seem to be fighting it more in the beginning instead of having fun with it.

Most second hand suits are intermediate suits and well worth the money and they generally do not lose value provided they are not damaged by you during use.

## **So..what should I buy?**

Trying to list all available wingsuits and keep that list current and updated would be a fulltime job. Some manufacturers are known to change their suits every few weeks, and it would be impossible to keep up with them.

At the moment, there are already more than 35 different wingsuits available on the market, all with their own unique options and design features.

With this article, what we've done is look at all the different aspects that make up a wingsuit.

Using the features of a wingsuit as a rough guide, try and browse the product line of the manufacturer of your choice, and see which suit would be right for you and the style of flying you want to practice. Know that it's difficult to go wrong with your first wingsuit if you look closely at the features of the introductory and mid-level suits offered by all of the manufacturers.

As good as someone else's advice may be, there is no substitute for actually trying and flying a wingsuit. It's you that will be wearing the suit, no one else. Try the suit before buying, even if it means waiting until you can get a demo of the suit. Most manufacturers will offer demos if you contact them, or try and find someone flying a similar suit, and ask if you may give it a try.

As honest as other people's advice may be, beware bias based on heroes in the sport or their own personal preferences. A wingsuit is a substantial investment going into your gearbag. Try before you buy!

## Manufacturers

Though this list will change and update as time goes on, here are most common and consistent manufacturers listed with their websites.

[www.flyyourbody.com](http://www.flyyourbody.com)  
[www.phoenix-fly.com](http://www.phoenix-fly.com)  
[www.bird-man.com](http://www.bird-man.com)  
[www.tonysuits.com](http://www.tonysuits.com)  
[www.egsky.com](http://www.egsky.com)  
[www.matterclothing.com](http://www.matterclothing.com)  
[www.pressurized.at](http://www.pressurized.at)  
[www.jii-wings.com](http://www.jii-wings.com)

Other good resources include:

[www.dropzone.com](http://www.dropzone.com)  
[www.basejumper.org](http://www.basejumper.org)

For 2<sup>nd</sup> hand wingsuits, take a look at:

<http://www.dropzone.com/> wingsuit classifieds  
<http://www.flylikebrick.com/forsale.php>

## Credits

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